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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
MD20: Israeli Upper Tier	0.000	0.000	50.766	0.000	50.766	49.728	50.669	52.613	54.550	Continuing	Continuing
WX26: Israeli ARROW Program	0.000	121.671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	121.671
MD26: Israeli ARROW Program	0.000	0.000	24.247	0.000	24.247	18.309	18.338	18.342	18.375	Continuing	Continuing
WX34: Short Range Ballistic Missile Defense	0.000	79.652	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	79.652
MD34: Short Range Ballistic Missile Defense (SRBMD)	0.000	0.000	46.722	0.000	46.722	43.063	44.094	45.159	46.247	Continuing	Continuing
Note											
This new Program Element encompasses MDA’s U.S.-Israeli cooperative programs. Prior to FY 2010, these programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C)											
In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects WX26, and WX34 for FY 2009-FY 2010 are now captured in Projects MD20, MD26, and MD34.											
A. Mission Description and Budget Item Justification											
Since 1986, the United States and the State of Israel have cooperated on missile defense. MDA has three significant initiatives with Israel to develop and improve their indigenous capability to defend against short and medium range ballistic missiles. These include the Arrow Weapon System (AWS), the David’s Sling Weapon System (DSWS) for Short Range Ballistic Missile Defense (SRBMD) and a new Arrow-3 Interceptor. Additionally, MDA is developing, testing and exercising interoperability between U.S. BMDS systems and the Israeli Missile Defense Architecture to ensure Israeli systems can be integrated into the global BMDS. These programs are under the Capability Development mission area investments.											
Note:											

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<p>1.) Planned programs assume matching funds from Israel per international agreements.</p> <p>2.) Funding for these activities is directed by annual Congressional action.</p> <p>System Element Description</p> <p>The Arrow program consists of the following major efforts:</p> <p>The Arrow System Improvement Program (ASIP) enhances baseline Arrow Weapon System capabilities against more stressing evolving regional threats. ASIP enhancements will be implemented in a block upgrade program that includes ground and flight testing. The program also includes the development of Arrow co-manufacturing capability, co-production of the interceptor and the enhancement of Arrow's interoperability with U.S. Ballistic Missile Defense Systems (BMDS) via Joint Tactical Information Data System (JTIDS) /Link-16 common communication architecture. Related activities include the Israeli Test Bed (ITB), and the Israeli Systems Architecture and Integration (ISA&I) study that assesses requirements and growth paths for the 2020 Israel missile defense architecture. The ASIP Agreement concludes in 2016.</p> <p>The second Capability Development mission is the development of the David's Sling Weapon System (DSWS) for Short Range Ballistic Missile Defense (SRBMD). This system, designed to counter short range rockets serve as a lower-tier to the Arrow Weapon System, is also being developed in blocks. The first fielded block capability will perform the short range rocket defense mission. This need for this system was underscored in the 2006 2nd Lebanon War.</p> <p>Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel's Missile Defense Architecture. By adding an upper-tier capability to their current BMD architecture, Israel will increase the system's capability against advanced threats. The 2008 Joint Analysis of Alternatives study showed that Israel's proposed Upper Tier Component Interceptor (Arrow-3) could provide better performance at a lower cost than the land-based Standard Missile-3 (SM-3) interceptor if development and cost objectives are met. However, technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel's development progress for Arrow-3. In addition, MDA and the Israeli Ministry of Defense continue to implement practices that allow for the more effective use of program management tools to ensure risk is adequately managed.</p>		

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<p>System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS):</p> <p>U.S. Israeli cooperative programs like the Arrow Weapon System and the David`s Sling Weapon System are not part of the BMDS. MDA is working to ensure interoperability between U.S. BMDS assets and the Israeli Missile Defense Architecture.</p> <p>Major System Element Goals:</p> <p>These programs continue the United States strategic cooperation with the State of Israel in Missile Defense. Israel`s primary goal is the development of an Anti-Ballistic Missile System for defending Israel and its civilian population.</p> <p>For the United States:</p> <p>Assist in Developing Indigenous Regional Ballistic Missile Deterrent Capability Develop Interoperability Between Israeli Missile Defense Architecture and U.S. Ballistic Missile Defense System Shared Technology Development/Data Collection: Weapon Systems Technology, Interceptor Technology, Phenomenology, Models & Simulations, and Potential use of SRBMD system for U.S. Forces</p>		

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
0400: Research, Development, Test & Evaluation, Defense-Wide		PE 0603913C: ISRAELI COOPERATIVE			
BA 4: Advanced Component Development & Prototypes (ACD&P)					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	119.634	0.000	0.000	0.000
Current President's Budget	0.000	201.323	121.735	0.000	121.735
Total Adjustments	0.000	81.689	121.735	0.000	121.735
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		81.689			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	121.735	0.000	121.735
Change Summary Explanation					
No FY 2011 data provided in PB10.					

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APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT MD20: Israeli Upper Tier			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD20: Israeli Upper Tier	0.000	0.000	50.766	0.000	50.766	49.728	50.669	52.613	54.550	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note This project code encompasses MDA`s U.S.-Israeli cooperative programs for the Israeli Upper Tier program. It has been separated out from the WX26 project code found in FY 2010, and exhibits are established under the MD20 project code.											
A. Mission Description and Budget Item Justification This project provides funding for the Upper Tier component of the Arrow Weapon System (AWS) development. The Upper Tier component of the Arrow Weapon System provides Israel an indigenous capability to defend against medium and long range ballistic missiles. Further, Arrow also acts as a cornerstone of the Architecture Enhancement Plan which is a joint U.S.-Israeli effort to create a combined U.S.-Israeli multi-tier Missile Defense Architecture. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets.											
Under the proposed U.S.-Israeli Project Agreement, the project will be jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement, documents the U.S.-Israeli cost share, in which the development costs will be equitable between the U.S. and Israel with Israel providing matching funds. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.											
NOTE: Planned Program assumes matching funds from Israel per our international agreements											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Upper Tier						0.000	0.000	50.766	0.000	50.766	
See Description Below											

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: NA						
FY 2010 Plans: NA						
FY 2011 Base Plans: With emerging weapons of mass destruction threats from regional enemies, the Government of Israel has determined a need for an upper-tier BMD component to complement the current Arrow Weapon System. Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel's Missile Defense Architecture. The 2008 Joint Analysis of Alternatives study showed that Israel's proposed Upper Tier Component Interceptor (Arrow-3) could provide better performance at a lower cost than the land-based Standard Missile-3 (SM-3) interceptor if development and cost objectives are met. However, technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel's development progress for Arrow-3.						
FY11 Planned Program: Conduct first interceptor fly-out test of the Arrow-3 Interceptor Conduct 5 Element Level Knowledge Point Demonstrations Integrate, test and calibrate prototype seeker design. Demonstrate prototype seeker's stabilization system in flight test. Demonstrate booster rocket motor performance in flight test. Demonstrate kill vehicle motor performance in flight test. Demonstrate kill vehicle guidance and control electronics.						

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B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA											
Accomplishments/Planned Programs Subtotals							0.000	0.000	50.766	0.000	50.766
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: Ballistic Missile Defense Technology	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: Ballistic Missile Defense Mid-Course Segment	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: Ballistic Missile Defense Boost Defense Segment	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: Ballistic Missile Defense Sensors	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: Ballistic Missile Defense System Interceptor	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: Ballistic Missile Defense Test and Targets	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: Ballistic Missile Defense Enabling Programs	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: SPECIAL PROGRAMS - MDA	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: BMD AEGIS	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919

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0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE				MD20: Israeli Upper Tier			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603893C: SPACE TRACKING & SURVEILLANCE SYSTEM	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: MULTIPLE KILL VEHICLE	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: BMD SYSTEM SPACE PROGRAM	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: BMD C2BMC	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: BMD HERCULES	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: BMD JOINT WARFIGHTER SUPPORT	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: DIRECTED ENERGY RESEARCH	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: REGARDING TRENCH	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: SEA BASED X-BAND RADAR (SBX)	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: BMD EUROPEAN INTERCEPTOR SITE	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: BMD EUROPEAN MIDCOURSE RADAR	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: BMD EUROPEAN CAPABILITY	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: BMD European Comm Support	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: LAND-BASED SM-3	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0604881C: Aegis SM-3 BLOCK IIA CO-DEVELOPMENT											
• 0604883C: PRECISION TRACKING SPACE SYSTEM	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: AIRBORNE INFRARED (ABIR)	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: Small Business Innovative Research BMDO	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: Pentagon Reservation	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: Management Headquarters-MDA	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
D. Acquisition Strategy											
<p>As a bi-lateral cooperative program with the State of Israel, the Upper Tier component of the Arrow Program does not follow standard DoD Acquisition Practices. The program is managed by an Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information generated prior to joint program initiation. With the Upper Tier Interceptor, Israel Ministry of Defense (IMoD) will contract on behalf of U.S. government to Israeli Aerospace Industries (IAI) and other Upper Tier Interceptor contractors. A Upper Tier Interceptor Project Agreement under the RDT&E Framework agreement between the U.S. and Israel will create a joint program office to manage this program. This agreement will allow Israel to contract on behalf of the United States. The DoD U.S. Israeli Cooperative Program Office jointly manages the Upper Tier program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter.</p>											
<p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p>											

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<u>E. Performance Metrics</u> NA		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010																																																										
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Product Development (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td>Upper Tier Upper Tier MD20</td> <td>TBD/CPFF</td> <td>Israeli Aerospace Industries (IAI) Israel</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">50.766</td> <td>Jul 2011</td> <td align="right">0.000</td> <td></td> <td align="right">50.766</td> <td>Continuing</td> <td>Continuing</td> <td>Continuing</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td> <td align="right">0.000</td> <td align="right">0.000</td> <td></td> <td align="right">50.766</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">50.766</td> <td></td> <td></td> <td></td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Upper Tier Upper Tier MD20	TBD/CPFF	Israeli Aerospace Industries (IAI) Israel	0.000	0.000		50.766	Jul 2011	0.000		50.766	Continuing	Continuing	Continuing	Subtotal			0.000	0.000		50.766		0.000		50.766			
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																											
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract																																																								
Upper Tier Upper Tier MD20	TBD/CPFF	Israeli Aerospace Industries (IAI) Israel	0.000	0.000		50.766	Jul 2011	0.000		50.766	Continuing	Continuing	Continuing																																																								
Subtotal			0.000	0.000		50.766		0.000		50.766																																																											
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				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																											
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Subtotal			0.000	0.000		0.000		0.000		0.000																																																											
Remarks NA																																																																					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010																																												
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT MD20: <i>Israeli Upper Tier</i>																																															
Test and Evaluation (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td colspan="3" style="text-align: right;">Subtotal</td> <td>0.000</td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td></td> <td></td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Subtotal			0.000	0.000		0.000		0.000		0.000			
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																													
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract																																										
Subtotal			0.000	0.000		0.000		0.000		0.000																																													
<u>Remarks</u> NA																																																							
Management Services (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td colspan="3" style="text-align: right;">Subtotal</td> <td>0.000</td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td></td> <td></td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Subtotal			0.000	0.000		0.000		0.000		0.000			
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																													
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract																																										
Subtotal			0.000	0.000		0.000		0.000		0.000																																													
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			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract																																										
Project Cost Totals			0.000	0.000		50.766		0.000		50.766																																													
<u>Remarks</u> NA																																																							

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency																								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)												R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE												PROJECT MD20: Israeli Upper Tier			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD20: <i>Israeli Upper Tier</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Interceptor Fly-out Test #1	2	2011	2	2011
Interceptor Fly-out Test #2	2	2012	2	2012
System Test #3	2	2013	2	2013
System Test #4	2	2014	2	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT WX26: <i>Israeli ARROW Program</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
WX26: <i>Israeli ARROW Program</i>	0.000	121.671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	121.671
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX26. For FY 2011 and beyond the program is split into MD20 for Israeli Upper Tier, and MD26 for ASIP.											
A. Mission Description and Budget Item Justification This project provides funding for Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), the Arrow Missile Production Program (AMPP) for the co-production of Arrow Interceptors, the Israeli Test Bed (ITB) experiments to evaluate Human-In-The-Loop (HIL) battle management, and the Israeli Systems Architecture and Integration (ISA&I) studies to assess Israel's future 2020 Missile Defense Architecture. The Arrow Weapon System provides Israel an indigenous capability to defend against short and medium range ballistic missiles. Further, Arrow also acts as a cornerstone of the Architecture Enhancement Plan which is a joint U.S.-Israeli effort to create a combined U.S.-Israeli multi-tier Missile Defense Architecture. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets. The ASIP effort will enhance the performance of the AWS to defeat longer-range and more robust ballistic missile threats expected to be introduced in the Middle East in the near future. Testing of the enhanced AWS in the U.S. against longer range threats is planned for FY 2009 and FY 2010 to verify Arrow's improved performance and capability. Co-production will continue to increase the industrial production capacity of the Arrow II interceptor. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths. Finally, a new Upper Tier component has been started to provide Israel with additional capability against emerging regional threats.											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Arrow System Improvement Program						0.000	41.000	0.000	0.000	0.000	
See Description Below											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT WX26: Israeli ARROW Program		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: NA						
FY 2010 Plans: The Arrow System Improvement Program (ASIP) is the fourth phase of the cooperative effort which began in 1988 to provide Israel with an indigenous missile defense and ensure the Arrow Weapon System(AWS) retains system effectiveness against evolving longer-range, more robust regional Theater Ballistic Missile threats. This initiative commenced on March 13, 2001 under the ASIP International Agreement between the United States and the State of Israel and runs through 2016. While the current program concludes with a 2010 capstone event of two flight tests on an U.S. test range, additional capability has been proposed as part of the new Upper Tier component. Thus a follow-on spiral development AWS Block 4.5 that will increase the Arrow II`s effective battlespace and provide additional sensor capability to the Arrow Weapon System is being formulated. AWS Block 5.0 will add an upper tier component to the Arrow Weapon System.						
Interdependency: BMDS elements (Terminal High Altitude Area Defense(THAAD), AEGIS, (Command, Control, Battle Management and Communications (C2BMC)), AN/TPY-2, and PATRIOT) participate in ground testing and exercises with the Arrow Weapon System.						
Conduct Joint Interoperability Exercise Juniper Cobra with Israel and U.S. forces Conduct Blue Sparrow Target Fly-out flight test in Israel Conduct System Requirements Review for AWS Block 5.0 Conduct Flight Test 2010 ;						
FY 2011 Base Plans: NA						

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT WX26: Israeli ARROW Program		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA						
Upper Tier See Description Below FY 2009 Accomplishments: NA FY 2010 Plans: With emerging weapons of mass destruction threats from regional enemies, the Government of Israel has determined a need for an upper-tier BMD component to complement the current Arrow Weapon System. Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel’s Missile Defense Architecture. The 2008 Joint Analysis of Alternatives study showed that Israel’s proposed Upper Tier Component Interceptor (Arrow-3) could provide better performance at a lower cost than the land-based Standard Missile-3 (SM-3) interceptor if development and cost objectives are met. However, technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel’s development progress for Arrow-3. Conduct Critical Design Review for the Israeli Arrow-3 interceptor Conduct 6 Element Level Knowledge Point Demonstrations Large format focal plane arrays developed and lab tested. Demonstrate rocket motor performance, with fixed nozzle, in static fire test. Demonstrate rocket motor performance, with large nozzle deflection, in static test. Demonstrate first pulse of two-pulse rocket motor design and barrier margin in static test.		0.000	49.365	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT WX26: Israeli ARROW Program				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstrate two pulse rocket motor performance in static test. Demonstrate kill vehicle hit point accuracy across engagement space in high fidelity simulation. FY 2011 Base Plans: NA FY 2011 OCO Plans: NA								
Arrow Missile Production Program (AMPP) See Description Below FY 2009 Accomplishments: NA FY 2010 Plans: The co-manufacturing project further enhances the Arrow Weapon System by establishing a capability in the United States and the State of Israel to co-produce Arrow components and interceptors. The goal of the co-production effort is to accelerate production of Arrow interceptors to meet Israel's defense requirements. ;The current production plan will be completed in 2011 and meet Israel's Defense Forces (IDF) current inventory requirement. However, discussions are ongoing to possibly increase these requirements and thus extend the co-production program. Continue delivery of Arrow II interceptors. FY 2011 Base Plans: NA				0.000	25.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: NA						
Israeli Test Bed (ITB) See Description Below FY 2009 Accomplishments: NA FY 2010 Plans: The Israeli Test Bed (ITB) is a cooperative effort conducted under the March 30, 1989 Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB is a large scale human-in-the-loop (HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. Many of the exercises accomplished on the ITB include participation of U.S. and Israel warfighters. The principal ITB facility resides at Holon, Israel. A second ITB capability is operational at the Missile Defense Agency's Advanced Research Center in Huntsville, Alabama. Accomplish ;three experiments and ;one exercise refining HIL tools for Command and Control, developing regional defense architectures, and impacts to tactics, techniques and procedures of the combined U.S.-Israeli Multi-tier Missile Defense Architecture. FY 2011 Base Plans: NA FY 2011 OCO Plans: NA		0.000	3.535	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010	
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Israeli Systems Architecture and Integration (ISA&I) See Description Below FY 2009 Accomplishments: NA FY 2010 Plans: The Israeli Systems Architecture and Integration (ISA&I) Study provides analyses of the future 2020 Israeli Missile Defense Architecture, growth paths for future development and interoperability with U.S. BMDS assets. Program objectives are to assess the ballistic missile threats, provide analyses and architecture options, assess missile defense system robustness and issues, and assess Israeli and U.S. missile defense interoperability issues. The ISA&I effort is contracted by MDA to an Israeli consulting firm. Continue studies on emerging regional ballistic missile threats, growth path options for the Israeli Missile Defense Architecture and evaluate Israeli and U.S. missile defense systems interoperability. ; FY 2011 Base Plans: NA FY 2011 OCO Plans: NA	0.000	2.771	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	121.671	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT				
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE				WX26: Israeli ARROW Program				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost	
• 0603175C: Ballistic Missile Defense Technology	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769	
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314	
• 0603882C: Ballistic Missile Defense Mid-Course Segment	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922	
• 0603883C: Ballistic Missile Defense Boost Defense Segment	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682	
• 0603884C: Ballistic Missile Defense Sensors	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483	
• 0603886C: Ballistic Missile Defense System Interceptor	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869	
• 0603888C: Ballistic Missile Defense Test and Targets	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577	
• 0603890C: Ballistic Missile Defense Enabling Programs	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384	
• 0603891C: SPECIAL PROGRAMS - MDA	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858	
• 0603892C: BMD AEGIS	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919	
• 0603893C: SPACE TRACKING & SURVEILLANCE SYSTEM	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631	
• 0603894C: MULTIPLE KILL VEHICLE	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027	
• 0603895C: BMD SYSTEM SPACE PROGRAM	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117	
• 0603896C: BMD C2BMC	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254	
• 0603897C: BMD HERCULES	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561	

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE				WX26: Israeli ARROW Program			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603898C: BMD JOINT WARFIGHTER SUPPORT	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: DIRECTED ENERGY RESEARCH	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: REGARDING TRENCH	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: SEA BASED X-BAND RADAR (SBX)	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: BMD EUROPEAN INTERCEPTOR SITE	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: BMD EUROPEAN MIDCOURSE RADAR	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: BMD EUROPEAN CAPABILITY	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: BMD European Comm Support	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: LAND-BASED SM-3	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: Aegis SM-3 BLOCK IIA CO-DEVELOPMENT	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: PRECISION TRACKING SPACE SYSTEM	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: AIRBORNE INFRARED (ABIR)	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: Small Business Innovative Research BMDO	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: Pentagon Reservation	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0901598C: Management Headquarters-MDA	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
D. Acquisition Strategy											
As a bi-lateral cooperative program with the State of Israel, the Arrow Program does not follow normal DoD Acquisition Practices. The program is managed by an Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information and facilities. With ASIP, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Israeli Aerospace Industries (IAI) and other ASIP contractors. MDA Targets Office contracts for production and instrumentation of targets for U.S. flight testing. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI. IAI then subcontracts to Boeing for manufacture of U.S. components. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, MDA contracts directly with Tadiran while IMoD provides their share of the funding to U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration.											
E. Performance Metrics											
NA											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT WX26: Israeli ARROW Program				
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Arrow System Improvement Program ASIP WX26	TBD/CPFF	Israeli Aerospace Industires (IAI) Israel	0.000	41.000	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Upper Tier Upper Tier WX26	TBD/CPFF	Israeli Aerospace Industires (IAI) Israel	0.000	49.365	Jul 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Arrow Missile Production Program (AMPP) Arrow Missile Production WX26	TBD/FFP	Israeli Aerospace Industires (IAI) & Boeing Israel & Alabama	0.000	25.000	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Israeli Test Bed (ITB) Israeli Test Bed WX26	TBD/FFP	Tadiran Israel	0.000	3.535	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Israeli Systems Architecture and Integration (ISA&I) ISA&I WX26	TBD/FFP	Wales, LTD Israel	0.000	2.771	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	121.671		0.000		0.000		0.000			
Remarks NA													

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT WX26: <i>Israeli ARROW Program</i>					
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT WX26: <i>Israeli ARROW Program</i>					
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	121.671		0.000		0.000		0.000			
Remarks NA													

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency																								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)												R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE												PROJECT WX26: Israeli ARROW Program			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX26: <i>Israeli ARROW Program</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
AWS Block 5.0 SRR	3	2010	3	2010
Arrow-3 CDR	3	2010	3	2010
Interoperability Tests	1	2010	1	2010
Israeli Test Bed Exercise	1	2010	1	2010
Israeli Test Bed Experiment-2Q2010	2	2010	2	2010
Israeli Test Bed Experiment-3Q2010	3	2010	3	2010
Israeli Test Bed Experiment-4Q2010	4	2010	4	2010
Blue Sparrow Fly-out-4Q2010	4	2010	4	2010
Flight Test - 3Q2010	3	2010	3	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT MD26: Israeli ARROW Program			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD26: Israeli ARROW Program	0.000	0.000	24.247	0.000	24.247	18.309	18.338	18.342	18.375	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note This Program Element encompasses MDA`s U.S.-Israeli cooperative programs. Prior to FY 2010, these programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) project code WX26. In FY 2010 these programs were listed under this Program Element with a project code of WX26.											
A. Mission Description and Budget Item Justification This project provides funding for Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), the Arrow Missile Production Program (AMPP) for the co-production of Arrow Interceptors, the Israeli Test Bed (ITB) experiments to evaluate Human-In-The-Loop (HIL) battle management, and the Israeli Systems Architecture and Integration (ISA&I) studies to assess Israel`s future 2020 Missile Defense Architecture. The Arrow Weapon System provides Israel an indigenous capability to defend against short and medium range ballistic missiles. Further, Arrow also acts as a cornerstone of the Architecture Enhancement Plan which is a joint U.S.-Israeli effort to create a combined U.S.-Israeli multi-tier Missile Defense Architecture. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets. The ASIP effort will enhance the performance of the AWS to defeat longer-range and more robust ballistic missile threats expected to be introduced in the Middle East in the near future. Testing of the enhanced AWS in the U.S. against longer range threats is planned to verify Arrow`s improved performance and capability. Co-production will continue increased production capacity of the Arrow II interceptor. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths.											
NOTE: Planned Program assumes matching funds from Israel per our international agreements											
B. Accomplishments/Planned Program (\$ in Millions)											
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total						
Arrow System Improvement Program	0.000	0.000	5.912	0.000	5.912						

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT MD26: Israeli ARROW Program		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
See Description Below						
FY 2009 Accomplishments: NA						
FY 2010 Plans: These plans are listed under this Program Element with a project code of WX26.						
FY 2011 Base Plans: The Arrow System Improvement Program (ASIP) is the fourth phase of the cooperative effort which began in 1988 to provide Israel with an indigenous missile defense and ensure the Arrow Weapon System (AWS) retains system effectiveness against evolving longer-range, more robust regional Theater Ballistic Missile threats. This initiative commenced on March 13, 2001 under the ASIP International Agreement between the United States and the State of Israel and runs through 2016. While the current program concludes with a 2010 capstone event of ;two flight tests on an U.S. test range, AWS Block 5.0 will add an upper tier component to the Arrow Weapon System.						
Interdependency: BMDS elements (Terminal High Altitude Area Defense (THAAD), AEGIS, Command, Control, Battle Management & Communications (C2BMC), AN/TPY-2, and PATRIOT) participate in ground testing and exercises with the Arrow Weapon System.						
Conduct AWS Block 5.0 Preliminary Design Review. Conduct flight test.						
FY 2011 OCO Plans: NA						
Arrow Missile Production Program (AMPP)		0.000	0.000	12.000	0.000	12.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT MD26: Israeli ARROW Program		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
See Description Below FY 2009 Accomplishments: NA FY 2010 Plans: These plans are listed under this Program Element with a project code of WX26. FY 2011 Base Plans: The co-manufacturing project further enhances the Arrow Weapon System by establishing a capability in the United States and the State of Israel to co-produce Arrow components and interceptors. The goal of the co-production effort is to accelerate production of Arrow interceptors to meet Israel's defense requirements. The current production plan will be completed in 2011 and meet Israel's Defense Forces (IDF) current inventory requirement. However, discussions are ongoing to possibly increase these requirements and thus extend the co-production program. Continue delivery of Arrow II interceptors. FY 2011 OCO Plans: NA						
Israeli Test Bed (ITB) See Description Below FY 2009 Accomplishments: NA		0.000	0.000	3.535	0.000	3.535

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT MD26: Israeli ARROW Program	
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2010 Plans:</i> These plans are listed under this Program Element with a project code of WX26.</p> <p><i>FY 2011 Base Plans:</i> The Israeli Test Bed (ITB) is a cooperative effort conducted under the March 30,1989 Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB is a large scale Human-in-the-loop (HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. Many of the exercises accomplished on the ITB include participation of U.S. and Israeli warfighters. The principal ITB facility resides at Holon, Israel. A second ITB capability is operational at the Missile Defense Agency`s Advanced Research Center in Huntsville, Alabama.</p> <p>FY 2011 Planned Program: Accomplish ;three experiments refining HIL tools for Command and Control, developing regional defense architectures, and impacts to tactics, techniques and procedures of the combined U.S.-Israeli Multi-tier Missile Defense Architecture.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>					
Israeli Systems Architecture and Integration (ISA&I) See Description Below <i>FY 2009 Accomplishments:</i> NA <i>FY 2010 Plans:</i> These plans are listed under this Program Element with a project code of WX26.	0.000	0.000	2.800	0.000	2.800

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT MD26: Israeli ARROW Program			
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
<p><i>FY 2011 Base Plans:</i> The Israeli Systems Architecture and Integration (ISA&I) Study provides analysis of the future 2020 Israeli Missile Defense Architecture, growth paths for future development and interoperability with U.S. BMDS assets. Program objectives are to assess the ballistic missile threats, provide analysis and architecture options, assess missile defense system robustness and issues, and assess Israeli and U.S. missile defense interoperability issues. The ISA&I effort is contracted by MDA to an Israeli consulting firm.</p> <p>FY 2011 Planned Program: Continue studies on emerging regional ballistic missile threats, growth path options for the Israeli Missile Defense Architecture and evaluate interoperability between U.S. and Israeli missile defense systems.</p> <p><i>FY 2011 OCO Plans:</i> NA</p>											
Accomplishments/Planned Programs Subtotals						0.000	0.000	24.247	0.000	24.247	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: Ballistic Missile Defense Technology	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: Ballistic Missile Defense Mid-Course Segment	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE			PROJECT				
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE			MD26: Israeli ARROW Program				
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603883C: Ballistic Missile Defense Boost Defense Segment	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: Ballistic Missile Defense Sensors	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: Ballistic Missile Defense System Interceptor	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: Ballistic Missile Defense Test and Targets	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: Ballistic Missile Defense Enabling Programs	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: SPECIAL PROGRAMS - MDA	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: BMD AEGIS	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: SPACE TRACKING & SURVEILLANCE SYSTEM	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: MULTIPLE KILL VEHICLE	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: BMD SYSTEM SPACE PROGRAM	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: BMD C2BMC	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: BMD HERCULES	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: BMD JOINT WARFIGHTER SUPPORT	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: DIRECTED ENERGY RESEARCH	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603906C: REGARDING TRENCH											
• 0603907C: SEA BASED X-BAND RADAR (SBX)	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: BMD EUROPEAN INTERCEPTOR SITE	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: BMD EUROPEAN MIDCOURSE RADAR	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: BMD EUROPEAN CAPABILITY	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: BMD European Comm Support	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: LAND-BASED SM-3	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: Aegis SM-3 BLOCK IIA CO-DEVELOPMENT	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: PRECISION TRACKING SPACE SYSTEM	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: AIRBORNE INFRARED (ABIR)	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: Small Business Innovative Research BMDO	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: Pentagon Reservation	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: Management Headquarters-MDA	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
D. Acquisition Strategy											
As a bi-lateral cooperative program with the State of Israel, the Arrow Program does not follow standard DoD Acquisition Practices. The program is managed by a Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information and facilities. With ASIP, Israel Ministry											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
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<p>of Defense (IMoD) contracts on behalf of U.S. government to IAI and other ASIP contractors. MDA Targets Office contracts for production and instrumentation of targets for flight testing conducted in the U.S. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI. IAI then subcontracts to Boeing for manufacture of components in the U.S.. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, MDA contracts directly with Tadiran while IMoD provides their share of the funding to U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration program. The DoD U.S. Israeli Cooperative Program Office co-manages the program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Product Development (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Arrow System Improvement Program ASIP MD26	TBD/CPFF	Israeli Aerospace Industries (IAI) Israel	0.000	0.000		5.912	Jul 2011	0.000		5.912	Continuing	Continuing	Continuing	
Arrow Missile Production Program (AMPP) Arrow Missile Production MD26	TBD/FFP	Israeli Aerospace Industries (IAI) & Boeing Israel & Alabama	0.000	0.000		12.000	Oct 2010	0.000		12.000	Continuing	Continuing	Continuing	
Israeli Test Bed (ITB) Israeli Test Bed MD26	TBD/FFP	Israeli Aerospace Industries (IAI) & Boeing Israel & Alabama	0.000	0.000		3.535	Oct 2010	0.000		3.535	Continuing	Continuing	Continuing	
Israeli Systems Architecture and Integration (ISA&I) ISA&I MD26	TBD/FFP	Wales LTD Israel	0.000	0.000		2.800	Oct 2010	0.000		2.800	Continuing	Continuing	Continuing	
Subtotal			0.000	0.000		24.247		0.000		24.247				
Remarks NA														

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT MD26: <i>Israeli ARROW Program</i>					
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT MD26: <i>Israeli ARROW Program</i>					
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		24.247		0.000		24.247			
Remarks NA													

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency																		DATE: February 2010										
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)									R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE									PROJECT MD26: Israeli ARROW Program										
	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Arrow Weapon System Block 5.0 Preliminary Design Review												■																
Arrow Weapon System Block 5.0 Critical Design Review														■														
Israeli Test Bed Exercise (4Q) 2011												■																
Israeli Test Bed Experiment (2Q) 2011											■																	
Israeli Test Bed Experiment (3Q) 2011											■																	
Israeli Test Bed Experiment (4Q) 2011												■																
Interoperability Test (4Q) 2012															■													
Israeli Test Bed Exercise (4Q) 2012															■													
Israeli Test Bed Experiment (3Q) 2012														■														
Israeli Test Bed Experiment (2Q) 2012														■														
Israeli Test Bed Experiment (4Q) 2012															■													
Israeli Test Bed Exercise (4Q) 2013																				■								
Israeli Test Bed Experiment (2Q) 2013																■												
Israeli Test Bed Experiment (3Q) 2013																	■											
Israeli Test Bed Experiment (4Q) 2013																		■										
Interoperability Test (4Q) 2014																								■				
Israeli Test Bed Exercise (4Q) 2014																								■				
Israeli Test Bed Experiment (2Q) 2014																					■							
Israeli Test Bed Experiment (3Q) 2014																							■					

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency																DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>								R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>								PROJECT MD26: <i>Israeli ARROW Program</i>			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD26: <i>Israeli ARROW Program</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Arrow Weapon System Block 5.0 Preliminary Design Review	3	2011	3	2011
Arrow Weapon System Block 5.0 Critical Design Review	1	2012	1	2012
Israeli Test Bed Exercise (4Q) 2011	4	2011	4	2011
Israeli Test Bed Experiment (2Q) 2011	2	2011	2	2011
Israeli Test Bed Experiment (3Q) 2011	3	2011	3	2011
Israeli Test Bed Experiment (4Q) 2011	4	2011	4	2011
Interoperability Test (4Q) 2012	4	2012	4	2012
Israeli Test Bed Exercise (4Q) 2012	4	2012	4	2012
Israeli Test Bed Experiment (3Q) 2012	3	2012	3	2012
Israeli Test Bed Experiment (2Q) 2012	2	2012	2	2012
Israeli Test Bed Experiment (4Q) 2012	4	2012	4	2012
Israeli Test Bed Exercise (4Q) 2013	4	2013	4	2013
Israeli Test Bed Experiment (2Q) 2013	2	2013	2	2013
Israeli Test Bed Experiment (3Q) 2013	3	2013	3	2013
Israeli Test Bed Experiment (4Q) 2013	4	2013	4	2013
Interoperability Test (4Q) 2014	4	2014	4	2014
Israeli Test Bed Exercise (4Q) 2014	4	2014	4	2014
Israeli Test Bed Experiment (2Q) 2014	2	2014	2	2014

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT MD26: Israeli ARROW Program	
		Start		End	
Event	Quarter	Year	Quarter	Year	
Israeli Test Bed Experiment (3Q) 2014	3	2014	3	2014	
Israeli Test Bed Experiment (4Q) 2014	4	2014	4	2014	
Israeli Test Bed Exercise (4Q) 2015	4	2015	4	2015	
Israeli Test Bed Experiment (2Q) 2015	2	2015	2	2015	
Israeli Test Bed Experiment (3Q) 2015	3	2015	3	2015	
Israeli Test Bed Experiment (4Q) 2015	4	2015	4	2015	
Flight Test 2011	3	2011	3	2011	
Flight Test 2012	3	2012	3	2012	
Flight Test 2013	3	2013	3	2013	
Flight Test 2014	2	2014	2	2014	
Blue Sparrow Fly-out Test 2011	1	2011	1	2011	

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT WX34: Short Range Ballistic Missile Defense			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
WX34: Short Range Ballistic Missile Defense	0.000	79.652	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	79.652
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note This Program Element encompasses MDA`s U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX34. For FY 2011 and beyond, the project code will change to MD34.											
A. Mission Description and Budget Item Justification The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missiles attacks on civilian populations. The current Israeli Missile Defense Architecture (comprised of PATRIOT and Arrow) has capability against some of these short-range missile threats, but does not provide a cost-effective defense. The goal of the Israeli SRBMD program is to provide an affordable defense capability. In March 2005, the U.S. and Israel initiated a joint 18-month feasibility study of a low-cost SRBMD capability as a compliment to the Arrow Weapon System. This was followed in May 2006 by Israeli`s down selection to the David`s Sling Weapon System (DSWS) for their SRBMD solution. While currently there is no U.S. requirement for a SRBMD system MDA plans to influence specifications and development decisions to ensure the system could be suitable for potential future U.S. needs and interoperable with the U.S. Ballistic Missile Defense System (BMDS). The system is to be developed in development blocks with the initial block providing a baseline capability against long range rockets and very short range ballistic missiles.											
Under the U.S.-Israeli Project Agreement signed in September 2008, the project is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement documents the U.S.-Israeli cost share, in which the development costs are equitable between the U.S. and Israel with Israel providing matching funds. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.											
B. Accomplishments/Planned Program (\$ in Millions)											
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total						
SRBMD Program	0.000	79.652	0.000	0.000	0.000						

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT WX34: Short Range Ballistic Missile Defense			
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
See Description Below											
FY 2009 Accomplishments: NA											
FY 2010 Plans: Conduct Critical Design Review for Block 1.0(Initial Short Range Ballistic Missile Defense (SRBMD) capability). Conduct two interceptor control navigation fly-out test. Conduct Design Review #1 for Block 3.0(Adds Cruise Missile Defense capability). Conduct Design Review for Block 2.0(Expands SRBMD capability). Conduct Design Review #2 for Block 3.0											
FY 2011 Base Plans: NA											
FY 2011 OCO Plans: NA											
Accomplishments/Planned Programs Subtotals						0.000	79.652	0.000	0.000	0.000	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: Ballistic Missile Defense Technology	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE				WX34: Short Range Ballistic Missile Defense			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603882C: Ballistic Missile Defense Mid-Course Segment	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: Ballistic Missile Defense Boost Defense Segment	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: Ballistic Missile Defense Sensors	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: Ballistic Missile Defense System Interceptor	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: Ballistic Missile Defense Test and Targets	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: Ballistic Missile Defense Enabling Programs	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: SPECIAL PROGRAMS - MDA	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: BMD AEGIS	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: SPACE TRACKING & SURVEILLANCE SYSTEM	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: MULTIPLE KILL VEHICLE	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: BMD SYSTEM SPACE PROGRAM	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: BMD C2BMC	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: BMD HERCULES	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: BMD JOINT WARFIGHTER SUPPORT	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: DIRECTED ENERGY RESEARCH	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE				WX34: Short Range Ballistic Missile Defense			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603904C: MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)											
• 0603906C: REGARDING TRENCH	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: SEA BASED X-BAND RADAR (SBX)	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: BMD EUROPEAN INTERCEPTOR SITE	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: BMD EUROPEAN MIDCOURSE RADAR	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: BMD EUROPEAN CAPABILITY	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: BMD European Comm Support	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: LAND-BASED SM-3	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: Aegis SM-3 BLOCK IIA CO-DEVELOPMENT	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: PRECISION TRACKING SPACE SYSTEM	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: AIRBORNE INFRARED (ABIR)	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: Small Business Innovative Research BMDO	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: Pentagon Reservation	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>			
<u>C. Other Program Funding Summary (\$ in Millions)</u>											
<u>Line Item</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u> <u>Base</u>	<u>FY 2011</u> <u>OCO</u>	<u>FY 2011</u> <u>Total</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0901598C: <i>Management Headquarters-MDA</i>											
<u>D. Acquisition Strategy</u>											
As a bi-lateral cooperative program with the State of Israel, the SRBMD program does not follow standard DoD Acquisition Practices. The program is managed through a joint program office lead by an Israeli Co-Program Manager and, equal in responsibility, a U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information and facilities. With the David Sling Weapon System, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Rafael and other David's Sling Weapon System contractors. A Short Range Ballistic Missile Defense Project Agreement under the RDT&E Framework agreement between U.S. and Israel was signed Sept 2008 creating a joint program office to manage this program. This agreement allows Israel to contract on behalf of the United States.											
<u>E. Performance Metrics</u>											
NA											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SRBMD Program SRBMD Program WX34	TBD/CPFF	Rafael Israel	0.000	79.652	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	79.652		0.000		0.000		0.000			
Remarks NA													
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010																																																																																																												
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>																																																																																																															
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>	

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
David's Sling Weapon System Block 3.0 Design Review #1						■																						
Stunner Interceptor Fly-out #1						■																						
David's Sling Weapon System Block 1.0 Critical Design Review							■																					
Stunner Interceptor Fly-out #2							■																					
David's Sling Weapon System Block 2.0 Design Review								■																				
David's Sling Weapon System Block 3.0 Design Review #2								■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT WX34: <i>Short Range Ballistic Missile Defense</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
David`s Sling Weapon System Block 3.0 Design Review #1	2	2010	2	2010
Stunner Interceptor Fly-out #1	2	2010	2	2010
David`s Sling Weapon System Block 1.0 Critical Design Review	3	2010	3	2010
Stunner Interceptor Fly-out #2	3	2010	3	2010
David`s Sling Weapon System Block 2.0 Design Review	4	2010	4	2010
David`s Sling Weapon System Block 3.0 Design Review #2	4	2010	4	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>	0.000	0.000	46.722	0.000	46.722	43.063	44.094	45.159	46.247	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<p>Note</p> <p>This Program Element encompasses MDA's U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX34. For FY 2010 this program was found under this Program Element with a project code of WX34</p> <p>A. Mission Description and Budget Item Justification</p> <p>The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missiles attacks on civilian populations. The current Israeli Missile Defense Architecture (comprised of PATRIOT and Arrow) has capability against some of these short-range missile threats, but does not provide a cost-effective defense. The goal of the Israeli SRBMD program is to provide an affordable defense capability. In March 2005, the U.S. and Israel initiated a joint 18-month feasibility study of a low-cost SRBMD capability as a compliment to the Arrow Weapon System. This was followed in May 2006 by Israeli's down selection to the David's Sling Weapon System (DSWS) for their SRBMD solution. While currently there is no U.S. requirement for a SRBMD system, MDA is providing input and guidance regarding specifications and development decisions to ensure the system could be suitable for potential future U.S. needs and interoperable with the U.S. Ballistic Missile Defense System (BMDS). The system is to be developed in development blocks with the initial block providing a baseline capability against long range rockets and short range ballistic missiles.</p> <p>Under the U.S.-Israeli Project Agreement signed in September 2008, the project is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement documents the U.S.-Israeli cost share, in which the development costs are equitable between the U.S. and Israel with Israel providing matching funds. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.</p> <p>NOTE: Planned Program assumes matching funds from Israel per our international agreements.</p> <p>B. Accomplishments/Planned Program (\$ in Millions)</p>											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE				PROJECT MD34: Short Range Ballistic Missile Defense (SRBMD)			
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
SRBMD Program						0.000	0.000	46.722	0.000	46.722	
See Description Below											
FY 2009 Accomplishments: NA											
FY 2010 Plans: These plans are listed under project code WX34.											
FY 2011 Base Plans: Conduct Block 2 Preliminary Design Review Conduct Block 2 Critical Design Review Conduct one interceptor fly-out flight test											
FY 2011 OCO Plans: NA											
Accomplishments/Planned Programs Subtotals						0.000	0.000	46.722	0.000	46.722	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: Ballistic Missile Defense Technology	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: Ballistic Missile Defense Mid-Course Segment	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0603913C: ISRAELI COOPERATIVE				MD34: Short Range Ballistic Missile Defense (SRBMD)			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603883C: Ballistic Missile Defense Boost Defense Segment	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: Ballistic Missile Defense Sensors	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: Ballistic Missile Defense System Interceptor	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: Ballistic Missile Defense Test and Targets	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: Ballistic Missile Defense Enabling Programs	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: SPECIAL PROGRAMS - MDA	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: BMD AEGIS	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: SPACE TRACKING & SURVEILLANCE SYSTEM	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: MULTIPLE KILL VEHICLE	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: BMD SYSTEM SPACE PROGRAM	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: BMD C2BMC	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: BMD HERCULES	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561
• 0603898C: BMD JOINT WARFIGHTER SUPPORT	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: DIRECTED ENERGY RESEARCH	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency									DATE: February 2010		
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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603906C: REGARDING TRENCH											
• 0603907C: SEA BASED X-BAND RADAR (SBX)	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: BMD EUROPEAN INTERCEPTOR SITE	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: BMD EUROPEAN MIDCOURSE RADAR	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: BMD EUROPEAN CAPABILITY	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: BMD European Comm Support	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0604880C: LAND-BASED SM-3	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604881C: Aegis SM-3 BLOCK IIA CO-DEVELOPMENT	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	0	1,961.387
• 0604883C: PRECISION TRACKING SPACE SYSTEM	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: AIRBORNE INFRARED (ABIR)	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: Small Business Innovative Research BMDO	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: Pentagon Reservation	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337
• 0901598C: Management Headquarters-MDA	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441
D. Acquisition Strategy											
As a bi-lateral cooperative program with the State of Israel, the SRBMD program does not follow standard DoD Acquisition Practices. The program is managed through a joint program office lead by an Israeli Co-Program Manager and, equal in responsibility, an U.S. Co-Program Manager. Program funding is equitable between the U.S. and Israel with Israel providing matching funds. However, a portion of the Israeli cost share is from non-financial contributions such as background information											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>	PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>
<p>brought into the Project prior to joint program initiation. With the David Sling Weapon System, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Rafael and other David's Sling Weapon System contractors including Raytheon Missile Systems who acts as a critical subcontractor for the system co-development efforts.. A Short Range Ballistic Missile Defense Project Agreement under the RDT&E Framework agreement between U.S. and Israel was signed Sept 2008 creating a joint program office to manage this program. This agreement allows Israel to contract on behalf of the United States. The DoD U.S. Israeli Cooperative Program Office jointly manages the program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter.</p> <p>MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.</p> <p><u>E. Performance Metrics</u> NA</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010																																																										
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SRBMD Program SRBMD Program MD34	TBD/CPFF	Rafael Israel	0.000	0.000		46.722	Jan 2011	0.000		46.722	Continuing	Continuing	Continuing																																																								
Subtotal			0.000	0.000		46.722		0.000		46.722																																																											
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				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																											
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract																																																								
Subtotal			0.000	0.000		0.000		0.000		0.000																																																											
Remarks NA																																																																					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>				R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>				PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>					
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.000		0.000		0.000		0.000			
Remarks NA													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		46.722		0.000		46.722			
Remarks NA													

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency																DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>								R-1 ITEM NOMENCLATURE PE 0603913C: <i>ISRAELI COOPERATIVE</i>								PROJECT MD34: <i>Short Range Ballistic Missile Defense (SRBMD)</i>			

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
David`s Sling Weapon System Block 2.0 Preliminary Design Review					■																							
David`s Sling Weapon System Block 2.0 Critical Design Review														■														
Interceptor Fly-out Test 2Q2011										■																		
System Test Q2 2011										■																		
System Test Q4 2011												■																
System Test Q3 2012														■														
System Test Q1 2013																■												
System Test Q4 2013																	■											
System Test Q4 2014																							■					

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency			DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603913C: ISRAELI COOPERATIVE		PROJECT MD34: Short Range Ballistic Missile Defense (SRBMD)
Schedule Details				
	Start		End	
Event	Quarter	Year	Quarter	Year
David`s Sling Weapon System Block 2.0 Preliminary Design Review	1	2010	1	2010
David`s Sling Weapon System Block 2.0 Critical Design Review	2	2012	2	2012
Interceptor Fly-out Test 2Q2011	2	2011	2	2011
System Test Q2 2011	2	2011	2	2011
System Test Q4 2011	4	2011	4	2011
System Test Q3 2012	3	2012	3	2012
System Test Q1 2013	1	2013	1	2013
System Test Q4 2013	4	2013	4	2013
System Test Q4 2014	4	2014	4	2014

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